Jet Propulsion Laboratory **INTEROFFICE MEMORANDUM**

930-03-016 AEA/ESB:lc

July 15 2003

TO: J. A. Wackley

FROM: E. S. Burke

SUBJECT: Minutes for the DSS-25 and DSS-54 Downtime Readiness Review (DTRR) held on July 8, 2003.

DSS-25 and 54 Downtime Readiness Review

The DSS- and DSS-54 Downtime Readiness Review (DTRR) was held on July 8, 2003, with Goldstone and Madrid staff participating via the teleconference link. Wendy Hodgin presented the BWG Transmitter Upgrade task materials and Timothy Sink presented the Encoder Upgrade and Azimuth Wheel Replacement task materials. The DTRR was conducted to review and assess the readiness for all activities planned for the BWG Transmitter Upgrade, Encoder Upgrade and Azimuth Wheel Replacement tasks at DSS-54, scheduled to begin July 21, 2003 and the BWG Transmitter Upgrade at DSS-25 to begin August 4, 2003.

Review Board

Gene Burke, Chairman.....DSMS Operations
Jim Buckley for Allen Berman.....DSMS Operations
Charles Klose.....DSMS Operations
Bob McMahon.....CSOC Engineering
Jim McCoy.....GDSCC
Jesus Gimeno.....MDSCC
Jean Patterson.....Division 33
Art Andujo .....Secretary

Attendees

Andujo, Art	Guererro, Antonio	Matossian, Harout	Sink, Tim
Buckley, Jim	Hernandez, Juan	McCoy, Jim	Snedeker, Chuck
Burke, Gene	Hodgin, Wendy	McMahon, Bob	Sosnowski, John
Feria, Alfonso	Klose, Chuck	Osman, Jeff	Unglaub, Ricardo
Ghamari, Siamak	Lacey, Napoleon	Patterson, Jean	
Gimeno, Jesus	Losh, David	Silva, Arnold	

Introduction – *G. Burke*
Mr. Burke introduced the Downtime Readiness Review Board and reviewed the Downtime Readiness Review process definition.

DSS-54 Encoder Upgrade and Azimuth Wheel Replacement Downtime Reviewed - *T. Sink*

- **Task Summary**
- **Task Status**
- **Success Criteria Checklist**

Task Summary – The objectives to this part of the downtime are to upgrade the elevation and azimuth encoders, to improve blind pointing capabilities of the DSS-54 antenna and to replace the azimuth wheel and axle assembly with new hardware.

Task Status – A detailed schedule will be updated and sent to the Downtime Readiness Review Board and MDSCC for review. J. Sosnowski will update and distribute the schedule as an Action Item of this review.

All necessary hardware and tools were shipped to Madrid on July 3, 2003. All but two items have arrived and are being unpacked. The two items not yet arrived at the Complex are the data gear required for the azimuth wheel replacement, and one Sumitomo gear reducer. The gear reducer is at DLF being packed and is expected to arrive within a week of shipment. The data gear will be delivered upon completion of manufacturing to MDSCC from the manufacturer, Schwartz-Hoffman in Italy. Although there are two available in network spares, it was not possible to ship a data gear to MDSCC in time for the downtime. It is a possibility that the data gear will not be delivered by the start of the downtime, in that event, the azimuth wheel replacement task will not be performed and will be rescheduled to a later date, but the Encoder Upgrade and the 20kW transmitter tasks will go on as scheduled. J. Osman will provide the Downtime Readiness Review Board and MDSCC with status of the data gear until it has arrived, as an Action Item of this review.

***Success Criteria Checklist*:**
At this time there are no major outstanding issues, and it is being recommended that the Board proceed with the task:

- A detailed schedule is assumed credible based on past installations of this type. Supporting personnel are available for these tasks.
- Most all hardware is on-site, and is being unpacked. Remaining hardware is believed to arrive on time, but contingencies have been prepared.
- Installation procedures and safety plan documentation have been reviewed and released.
- Hardware transfer agreements have been initiated, ETA addendum forms have been submitted to ECM, and there are no liens.
- Spares hardware has been procured per the MSA and transfer will be done after task completion.

- Tools and personnel are available. MTC has been contracted to perform hardware installation at the antenna site, all special tools and optical equipment have been supplied to the contractor.
- There are no known anomalies in the system other than the variation of the structure, which has been tested by JPL and CSOC personnel for pointing accuracy.

DSS-25 and DSS-54 20 kW Transmitter Upgrade Activities Reviewed - *W. Hodgin*

- **Task Summary and Objectives**
- **Hardware and Software Transfer and Modkit Status**
- **Test Plans**
- **Workarounds and Functional Deferrals**
- **Operational Procedure Status**
- **Infrastructure Status**
- **Installation Resource Status**
- **Summary of DTRR Criteria**

Task Summary and Objectives – The objective of the 20kW transmitter upgrade is to increase the power of the X-band transmitters of the DSS-54 and 25 antennas. Instantaneous bandwidth will also be increased to 90MHz. DSS-54 will share S-band support equipment and will require an upgrade to that equipment to become compatible with the X-band system. This installation will require an upgrade of the existing 20kW S-band Power Amplifier (PA) at DSS-54 and replacement of the existing 4kW air-cooled X-band PA with a water-cooled 20kW PA and associated hardware at DSS-25 and 54.

***Hardware and Software Transfer and Modkit Status*:**

***Subsystems Affected*:**

- Block V Exciter at DSS-54 only
- Microwave Feed Equipment Group
- Power Distribution Group
- Transmitter equipment group at both DSS-25 and 54.

The Block V Exciter requires adjustment to be in compliance with configuration and control of the BWG antennas. All preparations to perform the exciter work have been completed.

The modifications to the Microwave Feed Group will modify X and S-Band waveguide to interface with the transmitters. All preparations to perform the Microwave Feed Group work have been completed.

Power Distribution Group equipment will be modified to provide power for the X-band transmitter and the S-Band PA. All preparations to perform the Power Distribution Group work have been completed, with the exception of electronic drawing updates, which will be supplied prior to the start of downtime.

The Transmitter Equipment Group will be modified installing a 20kW X/S-Band transmitter at DSS-54 and a 20kW X-Band transmitter at DSS-25. All preparations to perform the Transmitter Equipment Group work have been completed, except that the DSS-54 heat exchanger has not yet been shipped, due to testing. Shipment is expected on July 8, 2003. Some hardware remains to be shipped to DSS-25, but is expected to be shipped by July 14. There are also ten of the 300 drawings left to release, but they should be released well before the downtime start.

Test Plans – All hardware testing has been completed successfully per JPL Operation Test Procedures (OTP), with the exception of the heat exchanger, which showed some anomalies. There has been no schedule developed for antenna testing (Demo's, PIT, SPT's).

J. Buckley will have CSOC personnel develop an antenna testing schedule for submission to the Downtime Board as soon as possible, as an Action Item of this review.

Workarounds and Fundamental Deferrals – There are no workarounds identified at this time.

Operational Procedure Status – There are no operational procedures required.

Infrastructure Status – The transmitter will provide Category 5 cabling to connect to the UPL LAN.

Installation Resource Status – All resources required for this downtime, including manpower and materials have been scheduled and reviewed with site personnel.

***Summary of DTRR Criteria*:**

At this time there are no major outstanding issues and it is being recommended to the Board to proceed with the task:

- The detailed schedule is credible and supporting personnel are available.
- All hardware Modkits are or will be on-site greater than three weeks before the downtime.
- All planned pre-installation hardware testing is complete.
- Installation instructions have been reviewed and are complete.
- Hardware transfer agreements have been initiated with MSA's attached
- Spares will be on-site by the end of the downtime.
- On-site facilities, tools and personnel are available.
- Training materials are ready for release and training sessions have been scheduled.

Board Summary:

The Board reviewed each of the success criteria following the presentation and recommended that DSS-25 and DSS-54 begin its downtime as planned. Comments provided by each of the Board members are as follows:

Jim Buckley – Mr. Buckley agreed to proceed with the downtime at DSS-25 and 54, but would like to have support test schedules as soon as possible.

Chuck Klose – Mr. Klose agreed to proceed with the downtime at DSS-25 and 54, but would like to have the data gear, detailed schedule, spares and support test schedule issues resolved as soon as possible.

Bob McMahon – Mr. McMahon agreed to proceed with the downtime at DSS-25 and 54, but would like to have the detailed schedule and spares issues resolved as soon as possible, and would like W. Hodgin to complete the TRR as soon as possible.

Jim McCoy – Mr. McCoy agreed to proceed with the downtime at DSS-25, but would like to be kept apprised of the shipment of the transmitter from JPL. H. Matossian agreed to provide shipment status to C. Snedeker.

Jesus Gimeno – Mr. Gimeno agreed to proceed with the downtime at DSS-54, however, he would like the spares, PDU delivery, and drawings delivered as soon as possible.

Jean Patterson – Ms. Patterson agreed to proceed with the downtime at DSS-25 and 54, but would like to have the outstanding issues addressed as soon as possible.

Gene Burke – Mr. Burke agreed to proceed with the downtime at DSS-25 and 54, but would like to have the antenna testing schedule, detailed schedule, hardware deliveries, and TRR report issues addressed as soon as possible.

Action Items (AI's):

1. John Sosnowski to create a detailed credible schedule for the DSS-54 Encoder Upgrade and Azimuth Wheel Replacement downtime task.
2. Jim Buckley will have CSOC personnel develop an antenna testing schedule (Demo's, PIT, SPT's) and submit to the Downtime Board as soon as possible.
3. Wendy Hodgin to provide TRR as soon as possible.
4. Jeff Osman to provide status updates of data gear required for DSS-54 Azimuth Wheel Replacement task.
5. Jeff Osman to provide status updates of heat exchanger required for DSS-54 transmitter upgrade.
6. Jeff Osman to provide status updates of power distribution unit required for DSS-54 transmitter upgrade.